

Test Ch. 3 & 4 Review Day 2

2. The table shows the population of four cities in 2001 and 2006. Rank the cities by their percent change in population.

City	Population, 2001	Population, 2006
Stratford	29 780	30 461
Chatham-Kent	107 341	108 177
Vaughan	182 022	238 866
Northern Bruce Peninsula	3 599	3 850

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$$\frac{n - o}{o} \times 100$$

$$\text{Stratford} \quad \frac{30\,461 - 29\,780}{29\,780} \times 100$$

$$= \frac{681}{29\,780} \times 100$$

$$= 2.28\%$$

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3. The marks, out of 100, on a biology test are shown. Determine the percentile rank of each student.

a) Jermaine b) Elisa c) Candace

Student	Mark	Student	Mark
Annika	67	Shaniqua	79
Zac	82	Candace	90
Brian	61	Vincent	68
Elly	44	Jermaine	84
Curtis	79	Alice	88
Jill	67	Katie	75
Elisa	63	Keegan	69
Andrew	63	Wyatt	84
Jon	32	Frank	62
Mary	51	Eileen	80

Elisa

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Rank Order

$$P = \frac{(L + 0.5F)}{n} \times 100$$

Elisa

$$P = \frac{(L + 0.5F)}{n} \times 100$$

$$P = \frac{(5 + 0.5(2))}{20} \times 100$$

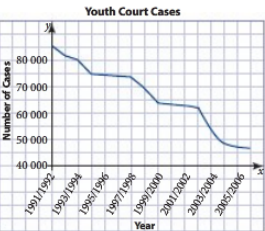
$$P = \frac{6}{20} \times 100$$

$$P = 30\%$$

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8. The graph shows the number of youth court cases in Canada annually from 1991/1992 to 2006/2007.

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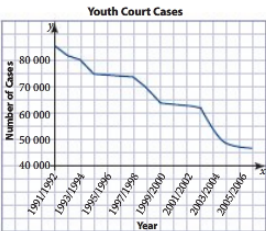
Source: Statistics Canada, CANSIM table 252-0047

- a) What does the graph imply?
b) How could you change the graph to more accurately display the data?
c) Write two newspaper headlines that give opposing views of the situation.

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- a) What does the graph imply?
b) How could you change the graph to more accurately display the data?
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Line of Best Fit

This table was posted in a fitness club and shows the estimated maximum possible heart rate during intense physical activity, based on the person's age.

Age (years)	10	20	30	40	50	60	70	80
Maximum Heart Rate (beats/min)	210	200	190	180	170	160	150	140

a) Make a scatter plot of the data and classify the correlation.
b) Use an algebraic method to determine an equation of the line of best fit.
c) Describe how to use the equation.

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This table was posted in a fitness club and shows the estimated maximum possible heart rate during intense physical activity, based on the person's age.

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Maximum Heart Rate (beats/min)	210	200	190	180	170	160	150	140

a) Make a scatter plot of the data and classify the correlation.
b) Use an algebraic method to determine an equation of the line of best fit.

Handwritten notes:

$y = mx + b$

$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

$\frac{160 - 210}{60 - 10} = \frac{-50}{50} = -1$

$y = -1x + b$

$210 = -1(10) + b$

$210 = -10 + b$

$220 = b$

$y = -1x + 220$

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Regression Analysis

Last year, twelve randomly selected students took a mathematics aptitude test before they began their college mathematics course. Their results on the aptitude test and their final mark in the course are shown in the table. All scores are out of 100.

Student	Aptitude Test Score	Final Mathematics Mark
A	95	86
B	73	68
C	59	61
D	68	70
E	84	90
F	80	87
G	82	71
H	64	60
I	66	72
J	50	45
K	74	74
L	64	53

a) Make a scatter plot of the data and use linear regression to determine the equation of the line of best fit. Give the slope and vertical-intercept.
b) How well does the regression equation fit the data? Explain.
c) If Hannah scored 75 on the aptitude test, what would you expect her mark to be in her college mathematics course?
d) If Pietro scored 40 on the aptitude test, what would you expect his mark to be in his college mathematics course?

Handwritten note: p.172

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Mar 27-8:57 AM

Steps to Graphing a Scatter Plot on the TI-83+:

STAT
1:Edit
Enter x values in L1 and y values in L2
STATPLOT (2nd, Y=)
1:Plot1
Highlight ON
WINDOW
Adjust values for the smallest and largest x-values (x-min, x-max), the smallest and largest y-values (y-min, y-max), and how many you want to count by on each axis (x-scl, y-scl).
GRAPH

Graphing a Line of Best Fit on the TI-83+:

In order to graph a line of best fit and measure the correlation strength, continue with the following steps after having already done the steps above:

MODE
Change from Float to 2 decimal places (by highlighting 2 and pressing ENTER)
2nd 0 (zero)
Cursor down the alphabetical catalogue until you get to "Diagnostics On", press ENTER twice
STAT
Cursor over to CALC
4:LinReg (ax + b)
2nd 1
comma (,)
2nd 2
comma (,)
VARS
Cursor over to Y-VARS
1:Function
2:Y1
ENTER

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